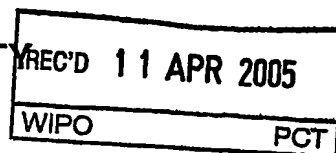



## PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference P100495PC00	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/EP2004/000050	International filing date (day/month/year) 07.01.2004	Priority date (day/month/year) 08.01.2003
International Patent Classification (IPC) or national classification and IPC H04Q7/38		
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) et al		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 13 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> sent to the applicant and to the International Bureau) a total of 12 sheets, as follows:</p> <p><input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input checked="" type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (Indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input checked="" type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input checked="" type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  07.07.2004	Date of completion of this report  08.04.2005	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Moreno-Solana, S-F  Telephone No. +49 89 2399-7678	



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2004/000050

## Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
    - ☐ international search (under Rules 12.3 and 23.1(b))
    - ☐ publication of the international application (under Rule 12.4)
    - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

### Description, Pages

1-20 as originally filed

### Claims, Numbers

29, 31 received on 08.11.2004 with letter of 08.11.2004  
1-28, 30, 32-45 received on 14.03.2005 with letter of 09.03.2005

### Drawings, Sheets

1/9-9/9 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. ☒ The amendments have resulted in the cancellation of:

- ☐ the description, pages
- ☒ the claims, Nos. 46-54
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

4. ☒ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☒ the description, pages 1,1a
- ☒ the claims, Nos. 29,31
- ☐ the drawings, sheets/figs
- ☐ the sequence listing (*specify*):
- ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/000050

---

**Box No. IV Lack of unity of invention**

---

1. ☐ In response to the invitation to restrict or pay additional fees, the applicant has:
- ☐ restricted the claims.
  - ☐ paid additional fees.
  - ☐ paid additional fees under protest.
  - ☐ neither restricted nor paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is
- ☐ complied with.
  - ☐ not complied with for the following reasons:
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
  - ☐ the parts relating to claims Nos. .

---

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

---

1. Statement

Novelty (N)	Yes: Claims	1-22,25-45
	No: Claims	23,24
Inventive step (IS)	Yes: Claims	1-22,25-45
	No: Claims	23,24
Industrial applicability (IA)	Yes: Claims	1-45
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

---

**Box No. VII Certain defects in the international application**

---

The following defects in the form or contents of the international application have been noted:

**see separate sheet**

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/000050

---

---

**Box No. VIII    Certain observations on the international application**

---

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

#### IV. Lack of Unity:

1. The present application does not comply with the requirements of unity of the invention as set forth in the PCT regulations (Article 34(3), Rule 13 PCT).

The separate inventions included in the present application are:

- 1) **Claims 1-22 and 29-44: maintaining a MBMS service** for a user equipment moving from a first to a second cell, where each cell can use a different basis for providing the MBMS service (i.e. point-to-multipoint without requiring an RRC connection, point-to-multipoint while requiring an RRC connection, or point-to-point basis), by detecting the necessity of an RRC connection and by controlling at least one RNC in order to establish a suitable connection in the second cell.
- 2) **Claims 23-24: establishing a MBMS service** in a cell.
- 3) **Claims 25-28 and 45: deciding whether to use a point-to-point or point-to-multipoint basis for the provision of a MBMS service** in a cell, by exchanging messages between the SRNC and the CRNC. In a particular embodiment (claim 45), the decision is done depending on the user equipments currently in RRC connected mode.

The common technical feature of **independent claims 1, 23, 25, 29, 31, 33, 37, 38, 43 and 45** (i.e. a multimedia data service implementation) is no special technical feature within the meaning of Rule 13.2 PCT, since said feature is in combination known in the art, e.g. from document **D1** (see in particular Paragraphs 7.1.1, 7.1.2 and 7.1.4) which discloses a method for implementing a multimedia data service for a user equipment capable of movement amongst a plurality of cells (i.e. an MBMS service context is established in the RNC when an MBMS service is created, wherein said context is created for UEs - which are capable of movement amongst a plurality of cells - in idle and connected mode).

Therefore, said **claims** relate to inventions which are **not so linked as to form a single general inventive concept**, Rule 13.1 PCT.

V. Citations and explanations:

A. Clarity:

2. It is clear from the description on page 17 in lines 5-8 that **the following feature is essential** to the definition of claim 37 of the first invention:

- When the UE passes from a first cell with PTM transmission, where an RRC connection is not required, to a second cell with PTM transmission, where an RRC connection is required, the UE receiving the MBMS service in RRC Idle mode detects whether the RRC connection is required in the second cell.

Since independent claim 37 does not contain said feature, it does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

3. The feature "multimedia data service" in claims 1, 23, 25, 29, 31, 33, 37, 38, 43 and 45 is unclear (Article 6 PCT), since the **scope of said claims is broader than justified** by the description and drawings (see PCT Guidelines 5.43). In particular, no reference is made in said claims to the fact that the service should be an MBMS (Multimedia Broadcast/ Multicast Service), as specified throughout all the embodiments of the description of the application as originally filed.

Moreover, the entire contents of the application as originally filed are such that they convey the impression that the "multimedia data service" of said claims must be an MBMS (Multimedia Broadcast/Multicast Service). However, the claims are formulated in such a way that they embrace other possibilities or all possibilities of "multimedia data services", and therefore said claims do not comply with the support requirement (see PCT Guidelines 5.56).

In this respect, the **amendments introduced** in the description of the application as

originally filed by the Applicant in his letter of reply of 9.03.2005 in order to indicate that the "invention relates to multimedia data services, such as Multimedia Broadcast/Multicast Services" and that "the invention relates to methods for ensuring multimedia data service provision for a mobile device", are **not allowable** since from the application as originally filed, and in particular from the problem and the solution given, it cannot be obviously and unambiguously derived that the application relates to any multimedia data service, and therefore said amendments represents an unallowable enlargement of the scope of the application in contravention of Article 34(2)(b).

4. Moreover, the **amendments introduced in claims 29 and 31 are not allowable** since they also contravene Article 34(2)(b).
  - 4.1 In this respect, it cannot be obviously and unambiguously derived from lines 15-17 on page 16 of the application as filed, used as basis for the amendment introduced in claim 29, that "the user equipment is adapted to determine whether it has a signalling connection to the network", although it is actually adapted "to send a signalling connection release indication", according to said citation. The detection could be done, without any particular restriction by the SRNC, by the CN or even by the UE, but no basis could be found through the description and drawings that would lead the reader to the conclusion that the UE is adapted for said determination obviously and unambiguously.
  - 4.2 Likewise, lines 22-25 on page 16 of the application as filed cannot be used as basis for the amendment introduced in claim 31, i.e. "the radio network controller is adapted to determine whether a serving Radio Network Controller is required for the user equipment", since from the text used as basis, it is not obvious and unambiguous that the RNC is adapted to determine whether the SRNC is required. Said detection could be done by any network element without particular restriction.
5. In view of the clarity objections in the paragraphs 1-4 above, in particular of the objections on paragraph 3, the opinion given on novelty and inventive step of the

claims will be carried out considering that the expression "multimedia data service" throughout the claims refers to a "Multimedia Broadcast/Multicast Service", and taking into account that the lack of unity and the other clarity objections were not remedied appropriately.

B. Novelty and inventive step:

6. FIRST INVENTION (claims 1-22 and 29-44):

6.1 The first invention relates to a **method** of providing an MBMS service, a **user equipment** for receiving an MBMS service, a **radio network controller** for use in providing an MBMS service, a **user equipment** for receiving an MBMS service, a **core network node** for use in providing an MBMS service, a **radio network controller** for use in providing a multimedia data service, and a **user equipment** for receiving a multimedia data service according to the features of respective independent **claims 1, 29, 31, 33, 37, 38 and 43**.

6.2 **Generally**, Multimedia Broadcast/Multicast Services (MBMS) are implemented in third generation mobile communication systems in order to provide the same multimedia information to a certain number of users. To do so, the network determines whether the service should be implemented using point-to-point (ptp) or point-to-multipoint (ptm) connections according to different criteria.

Document **D1** discloses a procedure in order to decide on having a point-to-multipoint connection or a point-to-point connection within a particular cell for a specific MBMS service. The CRNC (Controlling RNC) is responsible for the decision which is communicated to the SRNC (Serving RNC). According to the communicated decision, the SRNC can perform a channel type switching (from a ptp to a ptm, or from a ptm to a ptp connection).

Document **D2** discloses different procedures carried out between a user equipment (UE) and the network when transitions between an idle and a connection mode, or vice versa, at the UE occur (e.g. if said user equipment is in idle mode, a transition to



an Radio Resource Control (RRC) connected mode can only occur when the UE requests an RRC connection).

- 6.3 A **problem** arises when the user equipment moves from a first cell to a second cell, wherein at least one of the first and the second cells provides the MBMS service on a point-to-multipoint basis without requiring a RRC connection (i.e. idle mode), since the basis and the necessity of a RRC connection (i.e. the mode of the UE) can be different in the new cell.
- 6.4 The first invention overcomes said problem by providing a **method** of providing an MBMS service, a **user equipment** for receiving an MBMS service, a **radio network controller** for use in providing an MBMS service, a **user equipment** for receiving an MBMS service, a **core network node** for use in providing an MBMS service, a **radio network controller** for use in providing a multimedia data service, and a **user equipment** for receiving a multimedia data service according to the features of respective independent **claims 1, 29, 31, 33, 37, 38 and 43**.

According to the **special technical features of the invention**, when a user equipment moves from a first to a second cell, at least one RNC is controlled in order to detect whether an RRC connection is required in the second cell, and a suitable connection is established in said second cell according to the detection in order to maintain the MBMS service.

- 6.5 The first invention provides the **technical effect** of maintaining an MBMS connection for a certain UE moving between a first and a second cell, wherein the basis used (i.e. ptp or ptm) for the MBMS service and the necessity of an RRC connection can be different in the first and the second cells.
- 6.6 The subject-matter of the present invention as claimed in respective independent claims 1, 29, 31, 33, 37, 38 and 43 is neither disclosed in, nor rendered obvious by the **remaining prior art documents** cited in the international search report, since said documents, which merely relate to general state of the art of MBMS services, do **not** describe the method, user equipments, radio network controllers and core network node according to the particular feature combination of the first invention or

part thereof as defined in said respective independent claims 1, 29, 31, 33, 37, 38 and 43.

- 6.7 The subject-matter of claims 1-22, 30, 32-37 and 38-44 meet the requirements of Article 33(1)-(4) PCT. The one of claims 29 and 31 filed with letter of 08.11.2004 meet the requirements of Article 33(1)-(4) PCT (claims 29 and 31 filed with letter of 09.03.2005 were disregarded, see objections on paragraph 4 above).

7. SECOND INVENTION (claims 23-24):

- 7.1 Document **D3** (see in particular paragraphs 7.7, 7.7.1, 7.7.2 and 7.7.3; Figures 43-46) discloses, according to **all** the features of independent **claim 23**, a method of establishing a multimedia data service in a cell of a cellular telecommunications network (see paragraphs 7.7, 7.7.1, 7.7.2 and 7.7.3), comprising the steps of:
- sending a request for the multimedia data service from a user equipment to a core network (see "IGMP Message Frame (Join)" Figure 43);
  - sending an activation request from the core network to a controlling radio network controller of the user equipment (see "4. Activation Command" in Figure 43);
  - in response to the activation request, establishing a bearer connection between the controlling radio network controller of the user equipment and the core network (see paragraph 7.7.3; Figures 44, 45 and 46); and
  - transmitting the multimedia data service from the controlling radio network controller to the user equipment (see "MBMS data" in Figure 44).

The subject-matter of claim 23 therefore is **not new**, Article 33(2) PCT.

It should furthermore be noted that even if the novelty of claim 23 was argued, based on minor differences which might be pointed out, e.g. by adding to the subject-matter of claim 23 implementation details taken from the description, or based on a slightly different interpretation of the features of said claim, **an objection as to lack of inventive step**, Article 33(3) PCT, **would apply** to the resulting subject-matter, having regard to the disclosure of document **D3**, that already discloses **the same essential features** of said claim (i.e. sending a request for the multimedia data

service from a user equipment to a core network; sending an activation request from the core network to a controlling radio network controller of the user equipment; in response to the activation request, establishing a bearer connection between the controlling radio network controller of the user equipment and the core network; and transmitting the multimedia data service from the controlling radio network controller to the user equipment), operating according to the same principle claimed in claim 23, and already achieves **the same technical effect** (i.e. the establishment of an MBMS service in a cell for a user equipment) as the method claimed in claim 23, **and having regard also to the normal knowledge of a person skilled in the field of mobile telecommunications and related multicast service (MBMS) implementation arrangements.**

- 7.2 **Dependent claim 24** do **not** contain any additional features which, in combination with the features of the claim to which they refer, involve an inventive step for the reason that the subject-matter of said claim is derivable from the disclosure of document **D3**.

Due to the above reasons, the subject-matter of dependent claim 24 does **not** involve an inventive step, Article 33(3) PCT.

8. THIRD INVENTION (claims 25-28 and 45):

- 8.1 The third invention relates to a **method** of establishing an MBMS in a cell, and a method of providing an MBMS according to the features of respective independent **claims 25 and 45**.
- 8.2 **Generally**, Multimedia Broadcast/Multicast Services (MBMS) are implemented in third generation mobile communication systems in order to provide the same multimedia information to a certain number of users. To do so, the network determines whether the service should be implemented using point-to-point (ptp) or point-to-multipoint (ptm) connections according to different criteria.

Document **D1** discloses a procedure in order to decide on having a point-to-multipoint

connection or a point-to-point connection within a particular cell for a specific MBMS service. The CRNC (Controlling RNC) is responsible for the decision which is communicated to the SRNC (Serving RNC). According to the communicated decision, the SRNC can perform a channel type switching (from a ptp to a ptm, or from a ptm to a ptp connection).

Document **D3** discloses a procedure to establish an MBMS service in a cell.

- 8.3 A **problem** arises when an MBMS service is established in a cell, since the service establishment may be on a point-to-point (ptp) or a point-to-multipoint basis (ptm).
- 8.4 The third invention overcomes said problem by providing a **method** for establishing an MBMS service in a cell, and a method of providing an MBMS service according to the features of respective independent **claims 25 and 45**.

According to the **special technical features of the invention**, when an MBMS service activation request is sent from a UE to a core network, the core network sends said activation request to a SRNC, which then sends a message to the CRNC of the UE to determine whether the MBMS service will be transmitted on a ptp or a ptm basis in said cell. In a different embodiment, the decision on the use of a ptp or ptm basis is done at the radio access network based on the number of users in RRC connected mode (i.e. users who need an RRC connection in that cell).

- 8.5 The present invention provides the **technical effect** of selecting the appropriate basis for an MBMS service (i.e. ptp or ptm), when an MBMS service is established in a cell.
- 8.6 The subject-matter of the present invention as claimed in respective independent claims 25 and 45 is neither disclosed in, nor rendered obvious by the **remaining prior art documents** cited in the international search report, since said documents, which merely relate to general state of the art of Multimedia Broadcast/Multicast Services, do **not** describe the methods according to the particular feature combination of the third invention or part thereof as defined in said respective independent claims 25 and 45.

- 8.7 The subject-matter of claims 25 and 45 meet the requirements of Article 33(1)-(4) PCT.

**VII. Certain defects in the international application:**

9. Not all the independent claims are correctly cast in the **correct two-part form**, Rule 6.3(b) PCT.
10. The claims (preamble and characterising portion) do not contain **reference signs** in parentheses, Rule 6.2(b) PCT.

**VIII. Certain observations on the international application:**

11. The expression "establishing an **IU interface** between a serving radio network controller and a controlling radio network controller..." in claims 11 and 37 should probably read "establishing an **ICR interface** between a serving radio network controller and a controlling radio network controller..." (Article 6 PCT).
12. The expression "... SIB..." in line 3 of claim 20 is **not** clear (Article 6 PCT) since said expression has not been previously defined in said claim, i.e. there is **no antecedent** for said expression.
13. The expression "... message **from to** the serving radio network controller" in claim 29 is not clear (Article 6 PCT) and should probably read "... message **to** the serving radio network controller" (see description on page 16, lines 16-17).

*superficial*

1

**PROVISION OF A MULTIMEDIA BROADCAST/ MULTICAST SERVICE (MBMS)  
FOR A USER EQUIPMENT MOVING AMONG CELLS IN A CELLULAR MOBILE  
COMMUNICATION SYSTEM**

5 This invention relates to Multimedia data services, such as Multimedia  
Broadcast/Multicast Services (MBMS) in mobile communication systems. More  
particularly, the invention relates to methods for ensuring Multimedia data service  
provision for a mobile device which is moving between cells in a cellular mobile  
communication system.

10

In the third generation telecommunication systems, higher bit-rates are offered as well  
as better possibilities for transmitting variable bit rate traffic. For instance, services  
utilizing different quality requirements are possible to multiplex. Such possibilities open  
up for new types of services. One of these services that will be included in the 3GPP  
15 (3rd Generation Partnership Project) standard is a Multimedia Broadcast/Multicast  
Service (MBMS).

The 3GPP Specification 3GPP TS 25.346 V1.1.0 paragraph 7.1.2 discloses that a  
CRNC should decide whether a particular MBMS service should be provided by point-  
20 to-multipoint transmission in a particular cell.

The 3GPP Specification 3GPP TS 23.846 2.0.0 paragraph 7.7.1 describes a procedure  
whereby a user indicates the address of a multicast service that he wishes to join, while  
paragraph 7.5.1.1 discloses a procedure for activation of a multicast service.

25

The intention with MBMS is that different users can subscribe to broadcasting and/or  
multicasting of multimedia information of different kinds. An information provider thus  
transmits the same multimedia information to a number of users. Since multimedia  
information typically requires high transfer capabilities, a simultaneous  
30 broadcasting/multicasting of such information will occupy a number of times as large  
transfer capabilities compared with a single transmission. It is therefore advantageous  
for the network to determine whether particular MBMS data must be transmitted  
continuously, or whether it can be transmitted discontinuously. Further, it is  
advantageous for the network to determine whether particular MBMS data must be  
35 transmitted to specific users (point-to-point transmission), or whether it can more  
efficiently be transmitted by point-to-multipoint transmission.

*Superseded*

1a

The network must be able to make these determinations on a continuous basis, depending on the current locations of the users which wish to receive the particular MBMS data.

5 **SUMMARY**

According to the present invention, there are provided procedures for the establishment of MBMS services in different cells of a cellular telecommunications network. In particular, there are provided procedures for maintaining transmission of MBMS data to a particular user equipment, even as it moves from one cell to another, when the service is provided in different ways in different cells.

**CLAIMS**

1. A method of providing a multimedia data service, for user equipment which is capable of movement amongst a plurality of cells served by respective base stations of a radio access network, the method being characterised by:

providing the multimedia data service to each of said cells (a) on a point-to-multipoint basis without requiring a Radio Resource Control connection, (b) on a point-to-multipoint basis while requiring a Radio Resource Control connection, or (c) on a point-to-point basis; and

controlling at least one Radio Network Controller such that, when a user equipment moves from a first cell to a second cell, it is detected whether a Radio Resource Control connection is required in the second cell, and a suitable connection is established in said second cell to allow said user equipment to receive the multimedia data service, wherein at least one of the first and second cells provides the multimedia data service on a point-to-multipoint basis without requiring a Radio Resource Control connection.

2. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the method comprises:

sending a SIGNALLING CONNECTION RELEASE INDICATION message from the user equipment to the serving Radio Network Controller.

3. A method as claimed in claim 2, wherein the SIGNALLING CONNECTION RELEASE INDICATION message indicates the movement of the user equipment into said second cell as the cause of the request.

4. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the method comprises:

releasing the Radio Resource Control connection of said user equipment, such that said user equipment no longer requires a serving Radio Network Controller;



continuing point-to-multipoint transmission of the multimedia data service data from a controlling Radio Network Controller for said user equipment; and releasing an lu Interface between a previous serving Radio Network Controller and said controlling Radio Network Controller for said user equipment.

5

5. A method as claimed in claim 4, further comprising:  
determining whether said previous serving Radio Network Controller still requires a bearer connection to receive said multimedia data service data; and  
if not, releasing said bearer connection.

10

6. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a  
15 Radio Resource Control connection or on a point-to-point basis while requiring a Radio Resource Control connection, the method comprises:  
sending a request for a Radio Resource Control connection from the user equipment to the serving Radio Network Controller.

20

7. A method as claimed in claim 6, wherein the request for a Radio Resource Control connection indicates the movement of the user equipment into said second cell as the cause of the request.

25

8. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a  
Radio Resource Control connection or on a point-to-point basis while requiring a Radio Resource Control connection, the method comprises:

30

establishing a Radio Resource Control connection for said user equipment; and  
said user equipment directly contacting a core network to trigger activation of the multimedia data service for said user equipment.

35

9. A method as claimed in claim 8, wherein said user equipment contacts said core network by means of a Routing Area Update message.

10. A method as claimed in claim 9, wherein, when the multimedia data service in the second cell is provided on a point-to-point basis while requiring a Radio Resource Control connection, further comprising a dedicated channel for transmission of said multimedia data service data to said user equipment.

5

11. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a  
10 Radio Resource Control connection or on a point-to-point basis while requiring a Radio Resource Control connection, the method comprises:

establishing a Radio Resource Control connection for said user equipment, such that said user equipment requires a serving Radio Network Controller;

15 said user equipment directly contacting a core network to trigger activation of the multimedia data service for said user equipment; and

establishing an Iur interface between a serving Radio Network Controller and a controlling Radio Network Controller for said user equipment.

12. A method as claimed in claim 11, wherein, when the multimedia data service in the second cell is provided on a point-to-multipoint basis while requiring a Radio  
20 Resource Control connection, the method further comprising:

establishing a bearer connection from the core network to said serving Radio Network Controller for multimedia data service data; and

25 transmitting the multimedia data service data on a point-to-multipoint basis from said serving Radio Network Controller.

13. A method as claimed in claim 11, wherein, when the multimedia data service in the second cell is provided on a point-to-point basis while requiring a Radio Resource Control connection, the method further comprising:

30 establishing a bearer connection from the core network to said serving Radio Network Controller for multimedia data service data; and

establishing a dedicated channel for transmitting the multimedia data service data on a point-to-point basis from said serving Radio Network Controller to said user equipment.

35

14. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-point basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the method comprises:
- 5 detecting in a serving Radio Network Controller that the Radio Resource Control connection is no longer required.
15. A method as claimed in claim 14, wherein the step of detecting in the serving Radio Network Controller that the Radio Resource Control connection is no longer required comprises:
- 10 performing an attach from the serving Radio Network Controller to a drift Radio Network Controller; and
- said drift Radio Network Controller informing said serving Radio Network Controller that it is already providing the multimedia data service without requiring a Radio Resource Control connection.
- 15
16. A method as claimed in claim 14, wherein the serving Radio Network Controller informs the user equipment that it should receive the multimedia data service data on a point-to-multipoint basis.
- 20
17. A method as claimed in claim 14, wherein the serving Radio Network Controller informs the user equipment that it should release its existing radio access bearer for the receipt of the multimedia data service data on a point-to-point basis.
- 25
18. A method as claimed in claim 14, wherein the serving Radio Network Controller informs the user equipment that it should release its existing Radio Resource Control connection.
- 30
19. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-point basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the method comprises:
- 35 detecting in the user equipment that the Radio Resource Control connection is no longer required.

20. A method as claimed in claim 19, wherein the step of detecting in the user equipment that the Radio Resource Control connection is no longer required comprises monitoring a multimedia data service System Information Block (SIB).

5

21. A method as claimed in claim 19, further comprising releasing the existing Radio Resource Control connection.

10

22. A method as claimed in claim 1, wherein, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is also provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the method comprises:

15

the user equipment reading the broadcast information relating to the multimedia data service and tuning to a channel on which the data is being transmitted.

23. A method of establishing a multimedia data service in a cell of a cellular telecommunications network, the method comprising:

20

sending a request for the multimedia data service from user equipment to a core network;

sending an activation request from the core network to a controlling radio network controller of the user equipment;

25

in response to the activation request, establishing a bearer connection between the controlling radio network controller of the user equipment and the core network; and

transmitting the multimedia data service data from the controlling radio network controller to the user equipment.

30

24. A method as claimed in claim 23, further comprising broadcasting configuration information from the controlling radio network controller in said cell, identifying a channel on which the multimedia data service data is transmitted.

35

25. A method of establishing a multimedia data service in a cell of a cellular telecommunications network, the method comprising:

sending a request for the multimedia data service from user equipment to a core network;

26

sending an activation request from the core network to a serving radio network controller of the user equipment; and

characterised by sending a message from the serving radio network controller to a controlling radio network controller of the user equipment to determine whether the multimedia data service data will be transmitted on a point-to-point or point-to-multipoint basis in said cell.

26. A method as claimed in claim 25, further comprising, when it is determined that the multimedia data service data will be transmitted on a point-to-point basis in said cell:

establishing a bearer connection between the serving radio network controller and the core network; and

transmitting the multimedia data service data from the serving radio network controller to the user equipment on a point-to-point basis.

15

27. A method as claimed in claim 25 or 26, further comprising reconfiguring a radio link between the serving radio network controller and the controlling radio network controller of the user equipment.

28. A method as claimed in claim 25, further comprising, when it is determined that the multimedia data service data will be transmitted on a point-to-point basis in said cell, but is not already being transmitted;

establishing a bearer connection between the controlling radio network controller of the user equipment and the core network; and

transmitting the multimedia data service data from the controlling radio network controller to the user equipment on a point-to-multipoint basis.

29. User equipment, for receiving a multimedia data service in a cellular telecommunications network, characterised in that, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the user equipment is adapted to determine whether it has a signalling connection with the network, and, if it is determined that the user equipment has a signalling connection with the network, the user equipment is

adapted to send a SIGNALLING CONNECTION RELEASE INDICATION message to the serving Radio Network Controller.

30. User equipment as claimed in claim 29, wherein the SIGNALLING  
5 CONNECTION RELEASE INDICATION message indicates the movement of the user equipment into said second cell as the cause of the request.

31. A radio network controller, for use in providing a multimedia data service in a cellular telecommunications network, characterised in that, when a user equipment  
10 moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the radio network controller is adapted to:

15 determine whether a serving Radio Network Controller is required for the user equipment, and if it is determined that a serving Radio Network Controller is no longer required, the Radio Network Controller is adapted to:

release the Radio Resource Control connection of said user equipment, such that said user equipment no longer requires the serving Radio Network Controller;

20 continue point-to-multipoint transmission of the multimedia data service data from a controlling Radio Network Controller for said user equipment; and

release an Iu interface between a previous serving Radio Network Controller and said controlling Radio Network Controller for said user equipment.

25 32. A radio network controller as claimed in claim 31, further adapted to:  
determine whether said previous serving Radio Network Controller still requires a bearer connection to receive said multimedia data service data; and  
if not, to release said bearer connection.

30 33. User equipment, for receiving a multimedia data service in a cellular telecommunications network, characterised in that, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis while requiring a  
35 Radio Resource Control connection, the user equipment is adapted to:

detect that a Radio Resource Control connection is required in the second cell;  
and  
send a request for a Radio Resource Control connection to a serving Radio  
Network Controller.

5

34. User equipment as claimed in claim 33, wherein the request for a Radio  
Resource Control connection indicates the movement of the user equipment into said  
second cell as the cause of the request.

10

35. User equipment as claimed in claim 33 or 34, the user equipment is further  
adapted to:  
establish the Radio Resource Control connection; and  
directly contact a core network to trigger activation of the multimedia data service  
for said user equipment.

15

36. User equipment as claimed in claim 35, wherein said user equipment is adapted  
to contact said core network by means of a Routing Area Update message.

20

37. A core network node, for use in providing a multimedia data service in a cellular  
telecommunications network, characterised in that, when a user equipment moves from  
a first cell in which the multimedia data service is provided on a point-to-multipoint  
basis without requiring a Radio Resource Control connection, to a second cell in which  
the multimedia data service is provided on a point-to-multipoint basis while requiring a  
Radio Resource Control connection, and contacts the core network to trigger activation  
of the multimedia data service for said user equipment, the core network node is  
adapted to:

25

establish an Iur interface between a serving Radio Network Controller and a  
controlling Radio Network Controller for said user equipment; and

30

establish a bearer connection from the core network node to said serving Radio  
Network Controller for multimedia data service data; such that  
the multimedia data service data can be transmitted on a point-to-multipoint basis  
from said serving Radio Network Controller.

35

38. A radio network controller, for use in providing a multimedia data service in a  
cellular telecommunications network, characterised in that, when the user equipment  
moves from a first cell in which the multimedia data service is provided on a point-to-

point basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the radio network controller acting as a serving Radio Network Controller, is adapted to detect that the Radio Resource Control connection is no longer required.

39. A radio network controller as claimed in claim 38, wherein the Radio Network Controller is adapted to:

perform an attach to a drift Radio Network Controller; and  
receive information from said drift Radio Network Controller that it is already providing the multimedia data service without requiring a Radio Resource Control connection.

40. A radio network controller as claimed in claim 38, wherein the Radio Network Controller is adapted to inform the user equipment that it should receive the multimedia data service data on a point-to-multipoint basis.

41. A radio network controller as claimed in claim 38, wherein the Radio Network Controller is adapted to inform the user equipment that it should release its existing radio access bearer for the receipt of the multimedia data service data on a point-to-point basis.

42. A radio network controller as claimed in claim 38, wherein the Radio Network Controller is adapted to inform the user equipment that it should release its existing Radio Resource Control connection.

43. User equipment, for receiving a multimedia data service in a cellular telecommunications network, characterised in that, when the user equipment moves from a first cell in which the multimedia data service is provided on a point-to-point basis while requiring a Radio Resource Control connection, to a second cell in which the multimedia data service is provided on a point-to-multipoint basis without requiring a Radio Resource Control connection, the user equipment is adapted to:  
detect that the Radio Resource Control connection is no longer required.



44. User equipment as claimed in claim 43, wherein the user equipment is adapted to detect that the Radio Resource Control connection is no longer required by monitoring the multimedia data service SIB.

- 5 45. A method of providing a multimedia data service to a user equipment in a UMTS mobile communications network, comprising a Core Network and a UMTS Radio Access Network, the user equipment being capable of movement amongst a plurality of cells served by respective base stations of the Radio Access Network, wherein:
- 10 the Core Network informs the respective serving Radio Network Controller of the Radio Access Network about a user equipment that wants to receive a specific Multimedia Broadcast/Multicast Service (MBMS);
- the Core Network enables the Radio Access Network to track user equipments receiving MBMS services in RRC Connected Mode; and
- 15 the Radio Access Network determines whether to use point-to-multipoint, or point-to-point, transmission of data relating to said MBMS service, for users in RRC Connected Mode.